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(54) **Stabilizer composition enabling the production of a pourable aerated dairy dessert.**

(57) The invention concerns a stabilizer composition enabling the production of a pourable aerated dairy dessert having a shelf-life of at least three weeks without significant sagging or demixing, characterized in that it comprises 10 to 30 % by weight of guar gum, 5 to 20 % by weight of carrageenan and/or xanthan gum and 60 to 80 % by weight of an emulsifier selected from mono- and diglycerides of fatty acids, lactic or citric acid esters of mono- and diglycerides of fatty acids, sorbitan mono- or tristearate and lecithins.

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The present invention relates to a stabilizer composition particularly useful for preparing an aerated dairy dessert.

More exactly, this invention is related to a dessert in the form of a pourable mousse, although stable for a few weeks, which is preferably consumed cold, at the temperature of the refrigerator, but not frozen.

5 Shaken ice milks are known, namely of the milk-shake type, which are beverages with overrun and are consumed iced, at slightly negative (C°) temperatures. These drinks are prepared either traditionally by crushing and whipping ice cream in milk, or industrially by means of a machine which aerates and cools such a mixture optionally added with flavours and gelling and thickening agents such as carrageenan. However these are liquid desserts, having a relatively low overrun (30 to 70 %) and above all they are little  
10 stable in time.

On the other hand there are known milk-based mousses, namely whipped cream, bavarois and industrial chocolate mousses, which have high overrun, but are essentially solid and consequently cannot be poured.

Now, according to the present invention, it has been found a stabilizer composition allowing to obtain an  
15 aerated dairy dessert, having high overrun while being pourable and stable, which is an unexpected result in the literature.

Thus, the subject-matter of the invention is a stabilizer composition enabling the production of a pourable aerated dairy dessert having a shelf-life of at least three weeks without significant sagging or demixing, characterized in that it comprises 10 to 30 % by weight of guar gum, 5 to 20 % by weight of  
20 carrageenan and/or xanthan gum, and 60 to 80 % by weight of an emulsifier selected from mono- and diglycerides of fatty acids, lactic or citric acid esters of mono- and diglycerides of fatty acids, sorbitan mono- or trisuccinate and lecithins.  
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The guar gum, obtained by extracting ground guar seeds, is that generally used in food industry.

Similarly, carrageenan (either iota-, kappa-, lambda-carrageenan or their mixtures) and xanthan gum  
25 used in this composition, are fit for consumption. However lambda-carrageenan based products in mixture with or without xanthan gum are preferred.

The emulsifier used in the composition is selected in a group of products widely used in food industry and compatible with the other components while maintaining the stability of the aerated dessert. Although it is not compulsory for obtaining a convenient product, it is preferred to use 65 to 70 % by weight of  
30 emulsifier, advantageously a lactic acid ester of mono- and diglycerides of fatty acids, particularly with a majority of monoglyceride. By "fatty acid" those are understood which are authorized in food industry, such as oleic acid, palmitic acid, etc....

The composition of this invention is in particular useful for the preparation of a pourable, aerated dairy  
35 dessert, in the form of a foam, having an overrun of 50 to 150 % preferably, comprising 0 to 20 % by weight of fat, 0 to 3 % by weight of starch and 0.4 to 0.8 by weight of the stabilizer composition as defined above.

It is understood by overrun (OR) the following ratio :

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$$OR = \frac{W_1 - W_2}{W_2} \times 100 \text{ (in \% )}$$

45 where  $W_1$  is the weight of a volume of unwhipped dessert and  $W_2$  is the weight of the same volume of whipped dessert.

Thus, the dessert obtained with the stabilizer of the invention generally has an overrun of 75 to 150 %.

Usually the aerated dessert obtained according to the invention will essentially be prepared with whole milk or partially or totally skimmed milk and/or milk powder and cream, and may comprise 1 to 10 % fat.

50 The stabilizer composition will be used in a proportion from 0.4 to 0.8 %, particularly 0.5 to 0.7 % by weight of the aerated dessert although higher proportions may give the desired result.

Of course, the aerated dessert also contains sugar (for example about 10 % by weight) and/or artificial sweeteners, and may contain flavours (coffee, caramel, chocolate, etc...), and buffers (phosphates, etc..).

The aerated dessert may be prepared by convention means, namely with whipping machines (shaking/aerating machines) used for preparing chocolate mousses, milk-shakes, etc... It may be stored several  
55 weeks preferably at the temperature of the refrigerator.

The following examples illustrate the invention.

**Example 1**

A stabilizer composition was prepared by mixing 65 % by weight of lactic acid ester of mono- and diglycerides of fatty acids (E 472 b), 20 % by weight of guar gum (E 412) and 15 % by weight of carrageenan (E 407).

A solid premix comprising 2 parts (by weight) of starch, 7.5 parts of sugar, 0.40 part of vanilla flavour and 0.62 part of the above stabilizer composition has been dispersed in 89,5 parts (by weight) of 3 % fat milk.

Then the mixture has been pasteurized at 90 °C, homogenized at 150 bars, sterilized at 130 °C for 15 s., then cooled to 5 °C and kept for a night. This mixture has been aerated in a Mondomix<sup>R</sup> continuous whipping machine (inlet set at 7 bars, 350 rpm, and the mixer to 3 bars, 700 rpm) to obtain a dessert having an overrun of 100 %.

The aerated dessert thus obtained was appetizing both in appearance and taste and could be stored for 3 weeks at a temperature below 10 °C without any substantial sagging or demixing.

When 125 ml of dessert has been introduced in a 167 ml beaker (height 60 mm, upper diameter 70 mm, lower diameter 50 mm) which was tilted horizontal, the dessert has flown from the beaker within 15 s.

**Example 2**

The preparation has been carried out as in Example 1, except that 0.65 part by weight of a stabilizer composition consisting of 65 % by weight of the same emulsifier, 20 % by weight of guar gum, 10 % by weight of xanthan gum and 5 % by weight of carrageenan E 407 was used.

The dessert obtained had the same appearance as in the foregoing Example, and an overrun of 100 %. It was checked that the same composition allowed to obtain, with another adjustment of the machine, a dessert with a 50 % overrun while sufficiently stable for storage at the refrigerator.

**Example 3**

The preparation has been carried out as in Example 1, except that 0.58 part by weight of a stabilizer composition consisting of 70 % by weight of the same emulsifier, 18 % by weight of guar gum and 12 % by weight of xanthan gum was used and dispersed (with the starch, sugar and flavour) in 90 parts by weight of milk completed to 10 % fat with cream.

An aerated dessert having good stability in time was obtained.

0.55 part by weight of the same stabilizer composition as above was used for preparing an aerated dessert with 80 parts by weight of milk completed to 10 % fat, 2 parts of starch, 17.5 parts of sugar and 0.40 part of vanilla flavour, which could be stored for 1 month in the refrigerator at 5 °C without sagging.

**Claims**

1. A stabilizer composition enabling the production of a pourable aerated dairy dessert having a shelf-life of at least three weeks without significant sagging or demixing, characterized in that it comprises 10 to 30 % by weight of guar gum, 5 to 20 % by weight of carrageenan and/or xanthan gum and 60 to 80 % by weight of an emulsifier selected from mono- and diglycerides of fatty acids, lactic or citric acid esters of mono- and diglycerides of fatty acids, sorbitan mono- or tristearate and lecithins.
2. The composition of claim 1, characterized in that it comprises 65-70 % by weight of emulsifier.
3. The composition of claim 1 or 2, characterized in that the emulsifier is lactic acid ester of mono- and/or diglyceride(s) of fatty acids.



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## EUROPEAN SEARCH REPORT

Application Number  
EP 93 40 2613

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP-A-0 441 495 (PFIZER INC.) * page 7, line 18 - line 24; examples 9,22,38,39 *	1-3	A23L1/035 A23C9/154 A23L1/0526
X	US-A-3 887 715 (C. CANTE) * claim 1; example 2 *	1	
X	US-A-4 251 560 (W. DELL ET AL.) * claim 1; example *	1,2	
A	EP-A-0 238 330 (THE BRITISH FOOD MANUFACTURING INDUSTRIES R.A.) * claim 1; table 7 *	1	
A	US-A-4 400 406 (R. MORLEY ET AL.) * examples 10-13 *	1,2	
A	US-A-4 178 390 (R. IGOE) * claims 1,7; examples 1-6 *	1	
A	US-A-4 539 215 (J. SCHWEID ET AL.) * claim 1; example 2 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A23L A23C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 March 1994	Examiner Desmedt, G
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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